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The tibia has an extreme length of $9\frac{1}{2}$ inches; the breadth of the head is $4\frac{1}{4}$ inches; of the lower end $3\frac{1}{2}$ inches.

The astragalus at its condyles is $2\frac{1}{2}$ inches wide; the width of the anterior articulation is $2\frac{1}{4}$ inches.

The radius has an extreme length of 9 inches; the width of the upper extremity is 3 inches; of the lower extremity $3\frac{1}{4}$ inches.

The remaining specimen, obtained by Prof. Hayden on the Niobrara River, is the lower portion of the humerus, having about the same size and construction as the corresponding portion in the Bengal Tiger. It probably pertains to *Aelurodon ferox*, which was established on a specimen of a superior sectorial molar, from the same locality.

May 24th.

The President, DR. RUSCHENBERGER, in the Chair.

Twenty-eight members present.

May 31st.

The President, DR. RUSCHENBERGER, in the Chair.

Fifty-three members present.

The report of the Microscopical and Biological Section for April and May was read.

The following were elected members of the Academy:

Miss Grace Anna Lewis, Miss H. T. Smallwood, Miss E. Horner, Messrs. G. Rice, D. B. Smith, D. D. Willard, Walter D. Comegys, Wm. H. Gumbes, T. H. Speakman, John T. Morris and H. St. G. Elliott.

The following were elected Correspondents:

Col. R. S. Playfair, of Algiers; Prof. Carl Wilhelm Bœck, of Christiania; Prof. Frank H. Bradley, of Knoxville, Tenn.; and Prof. Rawson W. Rawson.

June 7th.

The President, DR. RUSCHENBERGER, in the Chair.

Sixteen members present.

The publication of the Proceedings for January, February, March and April was announced.

June 14th.

DR. BRIDGES in the Chair.

Twenty-four members present.

The following paper was presented for publication: "Description of New Species of Grasshopper from Colorado." By Prof. Cyrus Thomas.

PROF. LEIDY stated that he had recently received for examination several small collections of mammalian remains, from three different localities, which were especially interesting, as indicating faunæ and formations similar to those of the Mauvaisa Terres of White River, Dakota, and of the Niobrara River, Nebraska.

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One of the collections, received from the Smithsonian Institution, and obtained by Clarence King during the U. S. Geological Exploration of the 40th parallel, consists of specimens found on Sinker Creek, Idaho. These indicate a later tertiary formation like that of the Niobrara River. Among them are fragments of jaws and teeth of *Mastodon mirificus* and of *Equus excelsus*, both of which belong to the Niobrara pliocene fauna.

A second collection, accompanying the former, consists of specimens obtained by Mr. King in Utah. Among them are remains of *Protohippus perditus*, *Merychippus mirabilis*, and *Cosoryx*, all of which belong to the Niobrara pliocene.

A third collection, received from Prof. H. S. Osborn, of Lafayette College, Easton, Pa., was obtained on John Day's River, Oregon. The fossils indicate a miocene fauna and formation like that of the Mauvaises Terres of White River, Dakota. Among them are remains of *Oreodon Culbertsoni*, and what is suspected to be *Stylemys Nebrascensis*.

A fourth collection, received yesterday from the Smithsonian Institution, was obtained by the Rev. Thomas Condon, of Dalles City, Oregon, from the same locality as the latter. It consists of a few specimens, mostly uncharacteristic fragments, but among them are recognized several which pertain to species of the miocene fauna of the Mauvaises Terres. Small fragments of jaws with portions of molars belong to *Oreodon Culbertsoni*, though two exhibit slight peculiarities. In an upper molar of one, a small accessory fold projects from the outer concavity of the postero-internal lobe, as in the Deer. In another specimen the inner surface of the outer lobe of part of a molar is longitudinally rugose. In a third specimen there is no peculiarity. Another small fragment of an upper jaw, with portion of a molar, apparently belongs to *Agriochærus latifrons*. The specimens indicated are labelled "John Day's, Oregon."

Accompanying the last collection there is a portion of the head of a tibia, about the size and form of the corresponding part in a Horse, thoroughly petrified, and marked "Alkali Flats, Oregon." A few additional but uncharacteristic fragments are marked "Crooked R. D."

PROF. LEIDY further made some remarks on *Hadrosaurus* and its allies, as follows: In the "Synopsis of the Extinct Batrachia and Reptilia," published August, 1869, Prof. Cope has referred the supposed dinosaur *Thespesius* to *Hadrosaurus*, apparently from my not having expressed the distinctive characters of the two genera with sufficient clearness.

Specimens of teeth of a herbivorous dinosaur, obtained by Dr. Hayden on the Judith River, a tributary of the Upper Missouri, I referred to a relative of the Iguanodon with the name of *Trachodon* (Pr. A. N. S. 1856, 72; Trans. Am. Phil. Soc. 1859, xi, 140).

At the same time several vertebræ, together with an ungual phalanx, collected on Grand River, were referred to a genus with the name of *Thespesius* (Pr. 1856, 311; Trans. Am. Phil. Soc. 1859, xi, 151).

Subsequently the great part of the skeleton of an *Iguanodon*-like animal was discovered in the green sand formation of New Jersey, and described by me under the name of *Hadrosaurus* (Pr. 1858, 215; Cret. Rept. U. S. 1865, 76).

The teeth of the latter animal are identical in form with the most characteristic specimen originally referred to *Trachodon*, but differ in having the enameled border of the crown tuberculate.

Recently I have regarded *Trachodon*, as indicated by the teeth, as not distinctive from *Hadrosaurus* (Pr. 1868, 199).

From my remarks that "had the remains of *Thespesius* and *Trachodon* been found in a deposit of the same age I should have unhesitatingly referred them to the same animal" (Cret. Rept. 84), Prof. Cope, from a misconception of the meaning, has regarded *Thespesius* the same as *Hadrosaurus*.

The difference in character of the corresponding vertebræ render the two genera distinct, though, as in a multitude of other instances, they may have possessed teeth nearly alike, or even identical in form and construction.

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The caudal vertebræ of *Hadrosaurus* are biconcave or amphicælian; those of *Thespesius*, at least the larger, more characteristic ones, are convexo-concave or opisthocælian.

In the present condition of knowledge of the remains of *Hadrosaurus* and its allies, the following appear as distinct:

HADROSAURUS.

Caudals biconcave or amphicælian; cervicals and dorsals convexo-concave or opisthocælian.

HADROSAURUS FOULKII.

Leidy: Pr. A. N. S. 1858, 218; Cret. Rept. U. S. 1865, 76, pls. ii, figs. 9—11; viii, fig. 13; xii, xiii, figs. 1—19, 24—28; xiv—xvii, figs. 4, 5.

Crowns of the teeth tuberculate at their enameled margins.

HADROSAURUS MIRABILIS.

Trachodon mirabilis, Leidy: Pr. 1856, 72; Trans. Am. Phil. Soc. 1859, 140.

Crowns of teeth non-tuberculate at the enameled margins.

Remarks.—The non-tuberculate character of the borders of the teeth was not unlikely associated with others in the skull, &c., which if known would probably separate this species as a distinct genus from *Hadrosaurus*.

HADROSAURUS TRIPOS.

Cope: Pr. A. N. S. 1869, 192.

Founded on several caudals from the cretaceous formation of Sampson Co., North Carolina. The robust character of the vertebræ, with their strongly developed articular processes for chevrons, recalls to mind the caudals of *Iguanodon*, as represented in Tab. xxxvii of Owen's Monograph of the Reptilia of the Cretaceous Formation, published by the Palæontographical Society. The specimens probably represent a true *Iguanodon*.

HADROSAURUS MINOR.

Marsh: Pr. A. N. S. 1870, 2.

Indicated by several vertebræ from the cretaceous green sand of New Jersey.

THESPESIUS.

Caudals convexo-concave or opisthocælian.

THESPESIUS OCCIDENTALIS.

Leidy: Pr. A. N. S. 1856, 311; Trans. Am. Phil. Soc. 1859, 151, pl. x, figs. 1—5.

Hadrosaurus (?) occidentalis. Cope: Syn. Ext. Batr. and Rept., Aug., 1869, 98.

It is not improbable that part or the whole of the teeth originally referred to *Trachodon mirabilis* may belong to this animal. Even if such should prove to be the case, the different character of the vertebræ would render *Thespesius* quite distinct from *Hadrosaurus* or *Trachodon*.

It is uncertain, nay improbable, that the small caudal, with the plano-concave body, represented in figs. 6, 7, pl. 10, of the Trans. Amer. Philos. Soc. 1859, should belong to *Thespesius occidentalis*.

PROF. LEIDY next made some remarks on the family of the Vinegar-eels, the substance of which was as follows: The number of species and genera of nematoid worms, represented by the Vinegar-eels, and constituting the family *Anguillulidæ*, is astonishingly great. They are found in multitudes frequently in and about moist decaying and fermenting organic substances. Mr. Bastian, of London, a few years since contributed to the 25th volume of the Transactions of the Linnean Society a paper, in which he has given descriptions, with characteristic figures, of most of the known species, including about one hundred new ones, which he observes he discovered from a few

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limited regions in England in the course of fifteen months. In seeking for the source of the small thread-worm, or *Oxyuris vermicularis*, which infests man, I have also been led to discover some new species, of which I propose in due time to publish descriptions with drawings. As is commonly the case in organic nature, we find the specific form changing with the change in condition, but the species are often found to differ where difference in the conditions are hardly appreciable.

Mr. Bastian, in a note to his description of the Vinegar-eel, *Anguillula aceti*, says he was indebted to Dr. Davaine for the opportunity of examining the animals, and adds that "they are much less frequent than is generally imagined, at all events in England; and this may be due in great measure to the adulteration of our vinegar with sulphuric acid." It would thus appear that the *Anguillula aceti* he examined was contained in a specimen of what may be suspected to have been the wine vinegar of France. The cider vinegar so commonly used in this country usually teems with Vinegar-eels. Our cruets, when held up to the light, even to the sharp sight of a naked eye frequently exhibit the worms swarming, especially at the border of the surface, as if in search of both air and light. By comparison of our cider Vinegar-eel with Mr. Bastian's description and drawings of the true *Anguillula aceti*, which I infer to be the wine Vinegar-eel, it appears to belong to a different species. From the descriptions of previous authors of the European Vinegar-eel, I had considered ours as the same. I shall not now give a description of the animal, proposing to do so in future, together with other species. I may say, however, while it has nearly the size and form of the *Anguillula aceti*, it has the œsophagus of the form in the genus *Cephalobus* of Bastian.

June 21st.

WM. S. VAUX, Vice-President, in the Chair.

Twenty members present.

PROF. LEIDY remarked that the two fossils presented this evening by Dr. W. F. McAllister, of Burlington, Kansas, were obtained in that vicinity from gravel, at a depth of thirty feet, in digging a well. One of the specimens consists of a plate from a large molar of the American Elephant, *Elephas Americanus*. The other is the fore part of a ramus of a lower jaw of an Ox, perhaps of a large individual of the *Bison Americanus*. In comparison with the corresponding part of the jaw of the existing animal, the measurements are as follow:

	Fossil.	Recent jaw.
Depth at fore part of first molar.....	24 lines.	21 lines.
Depth at incisive foramen.....	26 "	24 "
Depth at lowest part of hiatus.....	21 "	18 "
Length of hiatus in advance of molar.....	52 "	52 "
Thickness below first molar.....	14 "	11 "

PROF. LEIDY further stated that he had recently received for examination a small collection of fossils, through the New York Lyceum of Natural History and the aid of his friend Mr. George N. Lawrence, which belonged to Mr. Wm. Newcomb, of New York. The collection is said to have been brought from the Rocky Mountains, but the exact locality has not yet been ascertained. Most of the fossils consist of fresh-water shells, evidently of tertiary age, but adherent matrix indicates them to have been derived from several different strata. Accompanying them there are a few bones, of which one is the coromary bone, apparently of *Equus excelsus*; the others mostly pertain to two fishes, a large cyprinoid and a ray. As the living cyprinoids are fresh-water fishes, the association of the remains of a ray may perhaps indicate that this was also a fresh-water species, though it is not unlikely that it may belong to

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